# BEST AVAILABLE COPY

**PATENT** 

#### AI MENDMENTS TO THE CLAIMS

Following is a complet  $\frac{1}{2}$  set of claims as amended with this Response. This complete set of claims excludes cancelled claims 1-3, 8-11, 19, 21, 23 and includes amended claims 4-7, 12, 16, 17, 20, 22, 24, 25.

- 1. (Cancelled)
- 2. (Cancelled)
- 3. (Cancelled)
- 4. (Currently Amen led) The cardiac stimulation device of claim [[1]] 17, further comprising a third term nal and a fourth terminal, wherein said switch means further comprises:

means for connecting any combination of said third terminal and said fourth terminal to ground to provide a return path for said electrical therapy from a left ventricular ring electrode, a right ventricular ring electrode, or both said left and right ventricular ring electrodes.

- 5. (Currently Amended) The cardiac stimulation device of claim [[4]] 17, wherein said switch means consprises:
  - a first switch sonn exting said pulse-generator to said first terminal; a second switch seemesting said pulse generator to said second terminal; a third switch connecting said pulse generator to said third terminal; and a fourth switch connecting said pulse generator to said fourth terminal.

Serial No. 10/074,403

Page 2 of 12

6. (Currently Amended) The cardiac stimulation device of claim 5, wherein said control means comprise:

a programmabk microcontroller; and

wherein said co nputer readable program code means for causing said microcontroller to control said switch means to

provide left vent icular pacing by closing only one of said first and second switches and closing at least one of said third and fourth switches,

provide right ver tricular pacing by closing only the other of said first and second switches and closing at least one of said third and fourth switches, and provide bi-ventricular pacing by closing both of said first and second switches and closing at least cine of said third and fourth switches.

7. (Currently Amended) The cardiac stimulation device of claim [[1]] 17, further comprising a third terminal and a fourth terminal, wherein said switch means further comprises:

means for connecting any combination of said third terminal and said fourth terminal to ground to provide a return path for said electrical therapy from an additional pacing electrode, a case of said stimulation device, or both said additional pacing electrode and said case.

- 8. (Cancelled)
- 9. (Cancelled)
- 10. (Cancelled)
- 11. (Cancelled)

Serial No. 10/074,403

Page 3 of 12

### BEST AVAILABLE COPY

**PATENT** 

- 12. (Currently Ame ided) The method of claim [[11]] 20, further comprising: electrically configuring said switch means to connect any combination of said third terminal and a fourth terminal to ground to provide a return path for said electrical pulse from a right ventricular ring electrode, a left ventricular ring electrode, or both the right and left ventricular ring electrodes.
- 13. (Original) The method of claim 12, wherein said fourth configuring step comprises:

  closing a third switch to connect said pulse generator to the third terminal; and opening a fourth switch to isolate said pulse generator from the fourth terminal.
- 14. (Original) The m∋thod of claim 12, wherein said fourth configuring step further comprises:

opening a third switch to isolate said pulse generator from the third terminal; and

closing a fourth switch to connect said pulse generator to the fourth terminal.

15. (Original) The m∈thod of claim 12, wherein said fourth configuring step further comprises:

closing a third swi ch to connect said pulse generator to the third terminal;

closing a fourth switch to connect said pulse generator to the fourth terminal.

16. (Currently Amended) The cardiac stimulation device of claim [[1]] 17, wherein said left ventricular pacing electrode is a tip electrode, and wherein said right ventricular pacing electrode is a tip electrode.

Serial No. 10/074,403

Page 4 of 12

Docket No. VT0316-US1

and

#### PATENT

#### **BEST AVAILABLE COPY**

17. (Currently Amended) The cardiac stimulation device of claim 2, An implantable cardiac stimulatic n device, comprising:

a first terminal for connection to a left ventricular pacing electrode, said left ventricular pacing electrode for placement in electrical contact with a left ventricle;

a second terminal for connection to a right ventricular pacing electrode, said right ventricular pacing electrode for placement in a right ventricle:

a pulse generator;

switch means fo connecting any combination of said first and second terminals to said pulse genera or to deliver electrical therapy to said left ventricular pacing electrode, said right ventricular pacing electrodes;

wherein said swiich means comprises:

a first swit :h connecting said pulse generator to said first terminal;

<u>and</u>

terminal; and

a second witch connecting said pulse generator to said second

control means for controlling operation of said pulse generator and said switch means:

wherein said cont of means comprises:

a programmable microcontroller; and

computer readable program code means for causing said microcontroller to control said s vitch means to close only one of said first and second switches to provide left ventricular pacing to a heart, to close only the other of said first and second switches to provide right ventricular pacing, and to close both of said first and second switches at differing times to provide bi-ventricular pacing with an interventricular delay.

Serial No. 10/074,403

Page 5 of 12

PAGE 7/13 \* RCVD AT 2/14/2005 6:22:38 PM [Eastern Standard Time] \* SVR:USPTO-EFXRF-1/0 \* DNIS:8729306 \* CSID:4087380285 \* DURATION (mm-ss):03-18

#### BEST AVAILABLE COPY

**PATENT** 

- 18. (Previously Presented) The cardiac stimulation device of claim 17, wherein said programmable inicrocontroller independently controls pacing pulse amplitude and pacing pulse vidth to the left and right ventricles.
  - 19. (Cancelled)
- 20. (Currently Amer ded) The method of claim 11, A method for operating a cardiac stimulation device hat ing a first terminal for connection to a right ventricular pacing electrode, a second terminal for connection to a left ventricular pacing electrode, and a third terminal, the method comprising:

using a pulse generator to generate an electrical pulse for delivery to a heart;

electrically conficuring switch means to deliver said electrical pulse to the first terminal when pulse delive ry is desired to a right ventricle of the heart, said switch means comprising closing a first switch to connect said pulse generator to the first terminal and opening a second switch to isolate said pulse generator from the second terminal;

electrically configuring said switch means to deliver said electrical pulse to the second terminal when pulse delivery is desired to a left ventricle of the heart, said switch means comprising open ng said first switch to isolate said pulse generator from the first terminal and closing the second switch to connect said pulse generator to the second terminal; and

electrically configuring said switch means to deliver said electrical pulse to both the first and second terminals when bi-ventricular pulse delivery is desired, said switch means comprising where in said third configuring stop further comprises: closing the first switch at a time  $t_0$  to connect said pulse generator to the first terminal, closing the second switch at a time  $t_1$  to connect said pulse generator to the second terminal; terminal, wherein  $t_0$  differs from  $t_1$  to provide bi-ventricular pacing with an interventricular delay.

Serial No. 10/074,403

Page 6 of 12

**PATENT** 

- 21. (Cancelled)
- (Currently Amended) The cardiac stimulation device of claim [[21]] 24, 22. further comprising:

a first terminal for connection to said left ventricular pacing electrode; and a second terminal for connection to said right ventricular pacing electrode; wherein said sw tching system comprises:

a first switch to connec said-pulse generator to said first terminal; and a-second switch to con rect said-pulse generator to said second terminal.

a first swi ch to connect said pulse generator to said first terminal;

<u>and</u>

<u>terminal.</u>

a second switch to connect said pulse generator to said second

- 23. (Cancelled)
- 24. (Currently Amenced) The cardiac stimulation device of claim 21, An implantable cardiac stimulation device, comprising:

a pulse generator;

a left ventricular r acing electrode switchably coupled to said pulse generator;

a right ventricular pacing electrode switchably coupled to said pulse generator:

a switching syster i to connect any combination of said left ventricular pacing electrode and said right ventricular pacing electrode to deliver pacing pulses to a left ventricle, a right ventricle, or both the left and right ventricles; and

a controller to con rol operation of said pulse generator and said switching system;

wherein said controller causes said switching system to close only one of said first and second switches to provide left ventricular pacing to a heart, to close only

Serial No. 10/074,403

Page 7 of 12

## PAGE 91/3\* RCVD AT 2/14/2005 6:22:38 PM [Eastern Standard Time] \*\* SPACE 91/3\* RCVD AT 2/14/2005 6:22:38 PM [Eastern Standard Time] \*\* SPACE 91/3\* RCVD AT 2/14/2005 6:22:38 PM [Eastern Standard Time] \*\* SPACE 91/3\* RCVD AT 2/14/2005 6:22:38 PM [Eastern Standard Time] \*\* SPACE 91/3\* RCVD AT 2/14/2005 6:22:38 PM [Eastern Standard Time] \*\* SPACE 91/3\* RCVD AT 2/14/2005 6:22:38 PM [Eastern Standard Time] \*\* SPACE 91/3\* RCVD AT 2/14/2005 6:22:38 PM [Eastern Standard Time] \*\* SPACE 91/3\* RCVD AT 2/14/2005 6:22:38 PM [Eastern Standard Time] \*\* SPACE 91/3\* RCVD AT 2/14/2005 6:22:38 PM [Eastern Standard Time] \*\* SPACE 91/3\* RCVD AT 2/14/2005 6:22:38 PM [Eastern Standard Time] \*\* SPACE 91/3\* RCVD AT 2/14/2005 6:22:38 PM [Eastern Standard Time] \*\* SPACE 91/3\* RCVD AT 2/14/2005 6:22:38 PM [Eastern Standard Time] \*\* SPACE 91/3\* RCVD AT 2/14/2005 6:22:38 PM [Eastern Standard Time] \*\* SPACE 91/3\* RCVD AT 2/14/2005 6:22:38 PM [Eastern Standard Time] \*\* SPACE 91/3\* RCVD AT 2/14/2005 6:22:38 PM [Eastern Standard Time] \*\* SPACE 91/3\* RCVD AT 2/14/2005 6:22:38 PM [Eastern Standard Time] \*\* SPACE 91/3\* RCVD AT 2/14/2005 6:22:38 PM [Eastern Standard Time] \*\* SPACE 91/3\* RCVD AT 2/14/2005 6:22:38 PM [Eastern Standard Time] \*\* SPACE 91/3\* RCVD AT 2/14/2005 6:22:38 PM [Eastern Standard Time] \*\* SPACE 91/3\* RCVD AT 2/14/2005 6:22:38 PM [Eastern Standard Time] \*\* SPACE 91/3\* RCVD AT 2/14/2005 6:22:38 PM [Eastern Standard Time] \*\* SPACE 91/3\* RCVD AT 2/14/2005 6:22:38 PM [Eastern Standard Time] \*\* SPACE 91/3\* RCVD AT 2/14/2005 6:22:38 PM [Eastern Standard Time] \*\* SPACE 91/3\* RCVD AT 2/14/2005 6:22:38 PM [Eastern Standard Time] \*\* SPACE 91/3\* RCVD AT 2/14/2005 6:22:38 PM [Eastern Standard Time] \*\* SPACE 91/3\* RCVD AT 2/14/2005 6:22:38 PM [Eastern Standard Time] \*\* SPACE 91/3\* RCVD AT 2/14/2005 6:22:38 PM [Eastern Standard Time] \*\* SPACE 91/3\* RCVD AT 2/14/2005 6:22:38 PM [Eastern Standard Time] \*\* SPACE 91/3\* RCVD AT 2/14/2005 6:22:38 PM [Eastern Standard Time] \*\* SPACE 91/3\* RCVD AT 2/14/2005 6:22:38 PM [Eastern Standard Time] \*\* SPACE 9

**PATENT** 

the other of said first and second switches to provide right ventricular pacing, and to close both of said first and second switches at differing times to provide bi-ventricular pacing with an interventricular delay.

25. (Currently Amer ded) The cardiac stimulation device of claim 21 24, wherein said pacing pulses have a pulse amplitude and pulse width, and wherein said controller independently controls said pulse amplitude and said pulse width to the left and right ventricles.